

**AMENDMENTS TO THE SPECIFICATION**

**Page 1, third paragraph, delete in its entirety, and replace with the following:**

It relates in particular, but not exclusively, to a telecommunications system such as a satellite-based telecommunications system, in which the propagation of signals between the transmitter and the receiver may vary, for example due to a variation in the weather.

**Page 2, first full paragraph, delete in its entirety, and replace with the following:**

Another solution to the problem of variations in the transmitter power or variations in noise levels is regulation. The transmitter power is controlled by the receiver. For this purpose, the signal to noise ratio of the received signal is determined; this ratio is compared with a reference ~~value,~~ value; then, from the result of the ~~comparaison~~ comparison, a set point is generated from the receiver to the transmitter. The purpose of said set point is to correct the power of the transmitter so that the transmitted signal supplies the receiver, after propagation in the transmission channel, with a signal whose signal to noise ratio is equal to the reference signal.

**Page 2, second full paragraph, delete in its entirety, and replace with the following:**

To compare, in the receiver, the signal to noise ratio to the reference, in general, before ~~comparaison~~ comparison, a low pass filtering type smoothing of the measurement of the signal to noise ratio is performed in order to limit the noise from the transmission channel.

**Page 3, third full paragraph, delete in its entirety, and replace with the following:**

The method according to the invention is characterised in that, whenever the receiver receives information from the transmitter, it determines a set power rating that the transmitter is

required to provide according to, on the one hand, the comparison between a characteristic of the received signal with a reference, and on ~~the other~~ another hand, the power at which the received information has been transmitted and, finally, on ~~the other hand~~ on a third hand, the set points previously transmitted but not recorded in the information received owing to transmission delays.

**Page 4, second full paragraph, delete in its entirety, and replace with the following:**

In a preferred embodiment, the characteristic of the received signal is determined as follows: the instantaneous signal to noise ratio of this received signal is measured, the latter signal to noise ratio is divided by the transmission power of the received signal, the result of the division is smoothed (~~per~~ for example, by applying a low pass filter) and this smoothed division signal is multiplied by the transmission power of the received signal.

**Page 5, third and fourth full paragraphs, delete in their entirety, and replace with the following:**

In a telecommunications system for which information is transmitted from the receiver to the transmitter, since the set points are transmitted with this information, it is preferable to provide an analog system for controlling the transmission power from the receiver to the transmitter. In this case, the transmission power of the received signal will be controlled at the transmitter. In other words, in this situation, the receiver and the transmitter each perform the dual function of transmission and reception.

The invention provides for a telecommunications method in which a transmitter transmits information to a receiver with a power that varies according to a set point supplied by the

receiver, this set point being established by a comparison between a characteristic of the received signal and a reference characteristic, the purpose of the set point being to maintain the power of the transmitter at a level so that the characteristic of the received signal is constantly equal to or similar to the reference characteristic. The method is characterised in that, as a delay is provided in the transmission of the signals between the transmitter and the receiver, the set point is generated, in the receiver, whenever information is received, from, on the one hand, said comparison between the characteristic of the received signal and the reference characteristic, and, on the other hand, from a signal representing the transmission power of the received signal.

**Page 8, fifth full paragraph, delete in its entirety, and replace with the following:**

figure 4 is a diagram showing a control system according to the invention, and

**Page 8, seventh full paragraph, delete in its entirety, and replace with the following:**

The example that will be described in relation to the figures pertains to a telecommunications system in which the surface of the terrestrial globe is divided into zones 10 (figure 1) of which only one has been illustrated on the ~~figure~~ figure. In each zone there is, on the one hand, a central control or connection station 20, and, on the other, terminals or subscriber stations 16, 18, etc.

**Page 8, ninth full paragraph, delete in its entirety, and replace with the following:**

As soon as satellite 14 ~~loses sight~~ loses sight of zone 10, the subsequent satellite (not shown), ~~par-for~~ for example on the same orbit 12, takes over the communication.

**Page 10, third and fourth full paragraphs, delete in their entirety, and replace with the following:**

Moreover, it is preferable that the power set point transmission from the receiver to the ~~done-transmitter~~ be done at the same time as the transmission of a cell since, as this set point only requires a small number of bits, it is preferable not to use a full cell only for transmission of the set point. It is therefore necessary to wait until (data or signalling) information has to be transmitted from the receiver to the transmitter to transmit this set ~~point~~ point. The sporadic nature of the traffic further increases the regulation difficulty since it entails non-deterministic, i.e. unforeseeable delays.

Consequently, a standard servo control system, where used as ~~it, is,~~ cannot operate correctly. Such a system is represented in figure 2. This figure shows that the transmitter 40 comprises an input 42 receiving a set point from a receiver 44. The transmission time between the control output 46 of the receiver 44 and the set point input 42 of the transmitter 40 corresponds to a delay symbolised by block 48. Moreover, the transmission of cells from the transmitter 40 to the receiver 44 is performed, as in the reverse transmission, by micro-wave link via satellite. This transmission provides for a channel 50 that also causes a delay. In the receiver

44, cells are received by a receiving device 52 and the signal to noise ratio  $\tilde{\gamma} = \frac{E_b}{N_0}$  is

constantly calculated (~~stack 54~~) in block 54 on each cell received.

**Page 11, second and third full paragraphs, delete in their entirety, and replace with the following:**

The smoothing 56' introduces a constraint on the transmission power. Indeed, this smoothing causes oscillations on the measured value during sudden variations of the input signal. These oscillations, which do not reflect actual oscillations of the received signal to noise ratio, are applied at block 58 and, therefore during one oscillation, this block 58 receives values  $\hat{\gamma}$  which ~~may~~ may be less than the reference  $\gamma_{ref}$ , whereas the real signal to noise ratio does not fall below the reference value. Consequently, the transmission power must usually be chosen with an excess value to take these measurement oscillations into account. As mentioned below, the invention, in one of its aspects, enables these unwanted oscillations to be minimized.

Moreover, as will be described in relation to figure 3, the research conducted under the present invention ~~reveal~~ revealed that the delays in the servo control loop illustrated in figure 2 prevent correct operation of this loop and this research has helped to understand the malfunction of the servo control and to propose a solution for this.

**Page 12, second full paragraph, delete in its entirety, and replace with the following:**

Under line 62 are 64 symbolised ~~the~~ values  $\gamma$  of ~~he~~ the signal to noise ratio measured at each time ~~unit-unit~~, and the last line symbolises the set points transmitted by the receiver to the transmitter.

**Page 13, second full paragraph, delete in its entirety, and replace with the following:**

In this figure 4, the elements corresponding to those of figure 3 bear the same reference numbers. The ~~fixtures-control~~ system illustrated in figure 4 differs from the one illustrated in figure 2 in that, according to the invention, in receiver 44, a block 70 is provided for controlling the filtering block 56' and the set point transmission block 58'.